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ABSTRACT

Institutional rewards and practical problems are associated with access to information technology. Pursuit of rewards may offer teachers career recognition and profile in school systems but may also, if taken up in an unreflective way, lead to injustice in the classroom and hinder achieving desirable social and academic goals. This peril is illustrated in a case study which examines the practice of one teacher who was given a computer in response to a successful proposal to do research in her classroom. Despite the fact that use of the computer did not significantly contribute to her goal of improving students' writing skills, the teacher continued to use the new technology and, because only one computer was available, restricted access to only a select group of students. Through the use of computers in their classrooms, teachers obtain a powerful language for communicating their interest in innovative methods to university people, others involved in new developments, and administrators looking for centers of innovation. This institutional reward structure makes it difficult for teachers to reflect on the value of new technologies and thus exercise the virtues of honesty, courage, and justice which enable them to make their practice worthwhile. Reflection on practice in relation to its institutional setting is critical because it alerts teachers to the ways in which the institutions of schooling can undermine their own practice. (GL)

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INFORMATION TECHNOLOGY IN SCHOOLS: INSTITUTIONAL REWARDS AND MORAL DILEMMAS

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INFORMATION TECHNOLOGY IN SCHOOLS: INSTITUTIONAL REWARDS AND MORAL DILEMMAS

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Teachers and Technology

I have been watching teachers use microcomputers for half a decade now and trying with their help (the teachers) to make sense of what I saw. At first it seemed odd to me that teachers were willing to put up with the inconvenience microcomputers seemed to cause them. My preliminary solution to this puzzle was to think that the microcomputer was a way for already avante garde teachers to express themselves -- a powerful symbol of their commitment to modernity. And thus the micro computer is worth the trouble it causes.

But is it worth it? Looking closer it seems that teachers are caught up in something less benign - the enhancement of career in exchange for cooperating with school systems in the process of justifying vast expenditures on hard and software. Is the game worth the candle? The lure of technology is seductive? How are teachers to respond? What is required of them? These are questions I ask in this paper.

To answer these questions we consider the case of one of eight teachers involved with us in a study of microcomputers in schools (Olson, 1988). We shall reflect on how institutional rewards can undermine good practice hoping to contribute not only to debates about the value of microcomputers in education, but,

more importantly, to those about the virtues needed to survive as a teacher in the perilous world of institution-driven innovation in schools.

Institutional rewards and practical problems are associated with access to information technology. In particular, pursuit of rewards may offer teachers career recognition and profile in school systems but may also, if taken up in an unreflective way, lead to injustices in the classroom and hinder achieving desirable social and academic goals. This peril is illustrated in the following case to which I now turn.

Writing with the Computer: Question of Fairness

As one of the eight teachers who had been given computers in response to successful proposals to do research in their classrooms, Mrs. E proposed an experiment in which writing using word processing was a "treatment" intended to affect the quality of writing.

Mrs. E used computers to help her students write better through student-student conferences, re-drafting to improve writing, and access to computers to encourage these activities. In her project a selected group of students participated who had extra time at the computer and extra attention from her:

> I say to [the students]: 'How would you like to work on the computer a little more often than perhaps some of the other students? You'll be part of a group of ten kids who are going to work until about March. You will have to write a little bit more but the pay off will be that you will have a little bit more time on the computer and hopefully both of us will learn a little bit about yourself and writing and you will certainly help me. You'll be doing me a big service. None of them wanted to decline...'
>
> I want to find out if word processing contributes to better writing. One of the advantages of word processing on the computer is being able to move material around. However, some of the students are hesitant to do so, especially those who are not in the project and those who are not "as quick." They are afraid they don't know how to do it. Access to the machine motivates the students and gives them a sense that they're on their own.

Mrs. E's practice has to be understood against the background of how middle school teachers teach language arts and what counts in that process. Student-student conferencing is not part of conventional practice, neither is the idea of having the teacher look at multiple drafts of writing. Other conventions form the social basis of middle school lessons. Her practice stands out as avant garde because of the kind of relationship amongst students and between students and teacher she says she is trying to foster. It is against what normally happens that we can appreciate what she is doing.

However, her attempts to do something unconventional is itself conventional. The school system expects her to do unconventional things in order to win a pilot project for her classroom, but has conventional ideas about educational research and about change as being research driven. The pilot project format designed by the board, and her subsequent response to it, are entirely conventional approaches to change in practice through institutional intervention. These conventions, rituals, if you like, part of bureaucratic life in school systems, do not encourage critical reflection of practice. Rather, they trade on the technical part of practice and ignore the ethical. How is this so?

What does the institution (school system) require of Mrs. E? She has to convince them she will do something "research-like" and "psychological" in order to gain access to a scarce resource. The competition emphasizes the collection of data about the instrumental efficiency of the microcomputer:

> You know you're looking at slight changes in the group. It will be interesting to see how, not just the superficial types of revisions in terms of spelling corrections or the conventions [change]. You can hopefully try to raise their level of thinking, because they have to conference with two other students at least and then at least once with me.

She has to win an experimental trial with the computer as a research treatment within a certain framework for construing her work. She is expected to maintain a ritualistic approach to

research (the horse race study) and a formalistic view of the object of her research ("levels of thinking"). Neither approach encourages attention to ethical matters. Her attention to form at the expense of substance can be seen in her odd failure to ask for a printer and a second disk drive both of which would make it easier for students to use the word processing software.

More importantly, the experiment means that only certain students are given extra attention. These students are encouraged to participate through the offer of more time at the computer and not only to the possibility of better writing, but the opportunity to become more competitive in the job market. This is how she "sells" her project to her student volunteers. It is how she values the computer:

> Looking back, I think that the students in the project have had the intensive feedback while the rest have increased their "hands-on" computer time. I have learned more about how students revise their work. The students are glad to increase their knowledge of computers with a career in mind.

Only some students will have this benefit. The students who volunteer, who do not include less able students, receive extra attention and extra computer time in return for co-operating in the pilot project.

How does Mrs. E deal with this question of fairness as she distributes access to the computer? She admitted that she did not distribute her time in a fair way, but that the experimental nature of the project justified this unfairness. What were the consequences of this decision?

Take the case of Sally one of the students not granted extra access. The disappointment she suffered because of her print-out of a geometric poem she had constructed on the screen (she did not know how to use the return key) did not engage Mrs. E's sympathies. Sally must struggle on on her own, she said, because this is one way that she will become a better person. But Sally, a student with learning difficulties, on the face of it, deserved extra attention as much as the project students did. Why not accord to Sally what the other students were given? These basic

matters of fair play were not part of what Mrs. E was encouraged to assess within the framework of the pilot project approach she was caught up in.

Similarly Mark, who wanted to keep his work private, was treated as a rogue. But privacy is an important issue in the use of microcomputers. Why does she find it strange that Mark might want to keep his work private?

When Mrs. E reflected on the students' experience of microcomputers, she returned to the computer literacy argument - computer experience is good for careers which is the conventional view about computers in the school system and beyond. Even so, she has doubts about the value of computers as an aid to writing, and she does worry about the fairness. Yet she wants to continue the same activity next year by extending her pilot project to maintain access to the computer in her room.

Given the problems with the computer, it is odd that she would want to repeat the experience. How are we to understand her apparent satisfaction with what seemed to us to be very problematic results in a situation she recognized as unfair? Let us pursue these questions in more detail.

Competition for Scarce Resources: Reward in the School Culture

In our case study of eight teachers using computers, one of whom was Mrs. E, we found that although the teachers had promised to pursue certain innovative activities using the microcomputer in their classroom, in no case did they feel that much progress had occurred in achieving promised goals -- yet they all wanted to go on as before. Even though many difficulties were encountered, teachers wanted to continue with the same activities under much the same conditions. On the face of it their experience did not justify going on. Why then did they want to persist?

To answer this we need to look closely at the culture of these teachers -- at what is conventional and unconventional in their practice. Practice is, after all, a social construct, and

if we are to understand the nature of the practice we have to understand the common meanings of the group which are intersubjective (Taylor, 1979; Geertz 1973). The imaginative universe of the teacher has to be understood if we want to understand what teachers are up to and especially the ends which constitute their practice. What are these teachers up to?

How are we to understand the thought that would lead these teachers to persist with what looked to us an unrewarding technology. The clue lay in what these teachers were doing before they took up with computers. When we examined how they taught before they had computers we found that these teachers all had experimented with various teaching innovations: simulations in geography; the use of film making in the classroom; analysis of student writing from a linguistics point of view. We concluded that in every case their practice had been avant-garde. Why then move to computers? Any why move to this common form of teaching from such different avant-garde practices?

These teachers, we think, obtained a powerful language for communicating their interest in innovative methods to university people, others involved in new developments, and to administration looking for centres of innovation (see Jackson, 1968). In their competition for scarce resources in order to draw attention to their avant gardism, they used information technology as a means to speak about what they valued -- they drew on a culturally approved symbol to signal their avant-gardism.

The very capacity of this technology to symbolize their commitment to new practices, while its greatest strength is also the wellspring of its seductive power. New technologies, being rewards in themselves and keys to further rewards, tempt teachers to pursue ends other than those which give their practice worth. MacIntyre (1981) calls such goods "external" to practice:

> It is characteristic of...external goods that when achieved they are always some individuals property or possession.... [T]he more someone has of them, the less there is for other people. This is sometimes necessarily the case, as with power and fame....

> External goods are...objects of competition. It is characteristic of [internal goods] that their achievement is a good for the whole community who participate in the practice (p. 190-191).

What was seductive about the new technology? Gaining access to it provides teachers with an expressive tool with which they can signal their avant-gardism. But are these technologies helping them practice better? Are these technologies worth competing for? Is it worth doing what the system wants done with these scarce resources in order to get them? Do teachers pay a high price to get hold of these symbols? There are a number of ways of looking at this: What do teachers have to promise and can they deliver? And even if they don't deliver what they promise, is what they actually do worthwhile? To answer these questions we have to understand the institutional framework in which these teachers practice.

Let us take the application process itself. First, the pilot project application form asked teachers to produce data useful to the institution - the school system. They were to see if, by using computers as a <u>treatment</u>, certain gains could be measured. The framework assumed that teaching technique was at issue, practice was uniform across levels of schooling, and that appraisal of computers in classrooms was a <u>technical</u> problem. Teachers thus were required to orient their projects to the political demands (external goods) of the institution for hard data about the outcomes of computer assisted learning rather than to pursue implications that emerged out of practice itself (internal goods), and to consider the value of the new technology in the light of their experience.

The competitive framework in which the pilot projects were run is not, however, of the teacher's making. It is root and branch part of the bureaucratic institution in which they work.

The institutional process of giving access to scarce technologies, and asking for "hard data" in exchange for recognition, made it harder for teachers to do what they ought to do -- reflect on the value of the new technology, and thus exercise those <u>virtues</u> which enable them to make their practice

worthwhile. Had they been encouraged to exercise those virtues, their capacity to learn from the experience of microcomputer based teaching might have been otherwise. Let us pursue the matter of virtue further as a way of understanding how these teachers might escape the seduction of new technology and its blandishments.

The Character of the Teacher and the Seduction of Technology

The school system believes that parents want their children to have access to computers because jobs depend on computer literacy. However, there are only so many computers to place in classrooms. Thus a competition is held in which scarce resources are made available to computer oriented teachers who believe that computer literacy is needed for career enhancement. This system obtains from the teachers the kind of research it needs to justify the cost of information technology and teachers gain access to system rewards. Both serve the cause of computer literacy. Computers go to those who share the idea that schooling involves the pursuit of external goods.

> Institutions are characteristically and necessarily concerned with what I have called external goods.... They are structured in terms of power and status, and they distribute money, power and status as rewards.... In this context the essential function of virtues is clear. Without them, without justice, courage and truthfulness practice could not resist the corrupting power of institutions.
> (MacIntyre, 1981, p. 194)

But what about the educational value of the computer based learning classroom and the classroom practices associated with it? What in this institutional process encourages critical thought about educational practice? Very little. The reasons are complex. School system approved research models stultify critical thought, career enhancement conflicts with educational values (Wilson, 1962) and the technology is itself seductive. What can be done about this? How are these pitfalls to be avoided and good practice sustained?

First, we have to say good practice can be explained in terms of virtues which sustain it. This is not a common way of looking at practice. Normally good practice is given not a moral basis for its discernment but a technical one (Berliner, 1987; Shulman, 1987). MacIntyre (1981) identifies honesty, courage and justice as the essential virtues of practice which act as reference points for explaining what teachers are doing in classrooms, as bases for identifying good teachers, and as norms which ought to be cultivated. How do these virtues feature in practice? What do teachers have to do?

> [Recognize] what is due to whom; [take] self-endangering risks; [listen] carefully to what we are told about our own inadequacies...in other words we have to accept as necessary components of any practice with internal good and standard of excellence the virtue of justice, courage and honesty.
> (MacIntyre, 1981 p. 191)

Practice is never just a craft or expertise -- it is a socially based process involving virtues:

> [Practice is] any coherent and complex form of socially established co-operative human activity through which goods internal to that form of activity are realized. Practice [provides] the arena in which the virtues are exhibited .... A practice involves standards of excellence and obedience to rules as well as achievement of goods.
> (MacIntyre, p. 187, 190)

Practice (praxis) is, of course, not the same thing as craft (technique), because technique is aimed at the production of something, while practice is aimed at the exercise of virtue. In the former the activity is aimed at ends beyond the activity itself, while in the latter it is the activity itself which is the end (Aristotle-Nicomachean Ethics: Irwin, 1985). The practice of teaching is not essentially aimed at production of something, but at developing and exercizing the virtues of the group to which teacher and student belong - it is a moral enterprise; not a technical one. Thus it is misleading to talk about the craft of teaching. There may be "crafty" elements, but it is essentially not a craft.

Given that it is a moral enterprise, it demands critical appraisal of new forms of practice and of the institutionalization of change itself. While all educators are involved in this problem major responsibility for worthwhile educational practice in schools falls to teachers who have to maintain an uneasy relationship with school bureaucracies. Yet those who work in administration must also reflect on their own role in this process of innovation so not to yield to the seductive power of new technologies, of career enhancement, and of technological rationality (Schon, 1983).

Some might take exception to my analysis by saying: "Why shouldn't teachers give some students access to expériences from which they are best able to profit? Really was Mrs. E wrong in what she did?" The answer to this isn't simple. Unfortunately there are not enough computers, not all students are equally able to profit, and some selection has to take place. Difficult choices are required in a situation of conflict in which wanting to do the best for everyone isn't possible. Mrs. E's dilemma was that by helping some she wasn't able to help others and indeed she had to take away from others. Seeing that dilemma for what it is and seeing how it arose is part of a morally based process of teacher education. It constitutes the path to good practice.

Teachers, like Mrs. E, said that they found the project format constraining, that they knew it was a facade behind which competition for scarce resources was being conducted, but that they had to conform to the institutional plan, even if only later to abandon the declared project goals after they received the resources they had bid for. They did what they had to do to get access to system rewards.

What might teachers like these contemplate as they reflect on their experience of microcomputers in their classroom and in relation to the policies of school systems? I would say - look at what the computer symbolizes in your practice and your system and see if all of that squares with what you think worth doing as a teacher. Now this requires courage -- a virtue -- as we said at the outset. Courage, as MacIntyre (1981) points out means

being able to look critically at what you do.

The study of practice in education ought to be diagnostic in this way. Education is a practical, ethical process concerned about doing good things (Sockett, 1987). The practical point of its study is to assess the fitness of practice and to seek remedy where there is evidence of dysfunction. It takes courage to do that. Looking carefully at what teachers tell us about practice and innovation are related: innovation ought to be a remedy for dysfunction and reflecting on practice the way to diagnose it.

Those who practice do not always achieve the goods the practice sets out to achieve, for it is hard to avoid being "seduced" by goods external to the practice as we saw in the case of Mrs. E. Thus the diagnosis of dysfunction is a crucial task for the student of practice - insider or outsider because it is important to know where the perils lie - what causes practice to "go off the rails".

Teachers work in an essentially conflicted institution about which, as MacIntyre (1971) suggests, we ought not to ask what end or purposes does [it] serve, but rather of what conflict is it the scene? He says, "it is through conflict and sometimes only through conflict that we learn what our ends and purposes are".

This is the reason why it is valuable to reflect on practice in relation to its institutional setting and why teachers must become alert to the ways in which the institutions of schooling can undermine their own practice. Thinking critically about those conflicts is a way to improve practice itself and build valid institutions in which practice can improve. Reflecting on practice aids in developing good schools through ethnically justified innovation. This is the link between research on teacher thinking and the process of innovation that ought to be made.

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